

What is claimed is:

1. A display measuring method for measuring a display characteristic of a display, comprising:
  - 5 displaying a specific color patch on a display;
  - counting a time that elapses after the color patch is displayed; and
  - measuring a color of the color patch displayed on the display,
  - 10 wherein the color patch is measured when the time that elapses after the color patch display reaches a specific pre-determined time.
2. A display measuring method for measuring a display characteristic of a display, comprising:
  - 15 displaying a specific color patch on a display;
  - measuring a color of the color patch displayed on the display;
  - displaying a pre-determined image on the display
  - 20 after a measurement; and
  - counting a time that elapses after the display, wherein a subsequent color patch is displayed when a specific time elapses after the image is displayed.

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3. A display measuring method for measuring a display characteristic of a display, comprising:

displaying an image on a display before a color patch starts to be measured;

5        counting a time that elapses after the display;  
displaying a specific color patch on the display;  
and

measuring a color of the color patch displayed on the display,

10       wherein when a specific time elapses after the specific image is displayed, the color patch is displayed and a measurement is started.

4. A display measuring method for measuring a display characteristic of a display, comprising:

15       counting a prescribed time after the power of a display is switched on; and

displaying a color patch after a prescribed time elapses.

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5. The display measuring method according to claim 1, comprising:

displaying the specific color patch on the display;

25       consecutively measuring colors of color patches

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displayed on the display;

storing a plurality of measurement results;

comparing the measurement result with a previous  
result and judging whether the measurement is  
5 stabilized; and

discarding the previous measurement result of  
the color patch and storing the measurement result  
obtained when the measurement is stabilized if the  
measurement is stabilized.

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6. The display measuring method according to any one  
of claims 1 through 5, comprising;

counting a time required to judge that a  
measurement value is stabilized after the color patch  
15 display; and

setting the count result as a measurement  
interval,

wherein the measurement interval set based on  
the m-th stabilization time is used for the n-th color  
20 patch (where,  $n > m$ ).

7. The display measuring method according to claim  
2, comprising:

consecutively measuring images displayed in the  
25 image display step; and

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comparing a plurality of measurement results obtained in the interval measurement step and judging whether a measurement value is stabilized,

wherein the subsequent color patch is displayed  
5 when the measurement value is judged to be stabilized.

8. A profile generating method used in a display measuring method for measuring a display characteristic of a display, comprising:

10 judging which of a plurality of tone reproduction characteristic models prepared in advance best approximates a tone reproduction curve of the display, based on a measurement result; and

calculating a parameter of the model based on  
15 the measurement result.

9. A display measuring method for measuring a display characteristic of a display based on a measurement value of a displayed color patch, comprising:

20 comparing a measurement value of a color patch of a first size with a measurement value of a color patch of a second size, which is smaller than the first size;

measuring the color patch of a third size, which  
25 is smaller than the second size as a result of the

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    setting the first size as the size of the color
5  patch if the measurement values of all the color patchs
    are the same.

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10. A display measuring method for measuring a display characteristic of a display, comprising:

10 displaying a specific color patch on the display;

measuring a color of the color patch of a single color displayed on the display;

storing a measurement result;

calculating a color value with the plurality of

15 colors combined from a plurality of measurement values stored in the measurement result storage step; and

comparing a color value calculated by the color additive-mixture with the measurement value obtained in the measurement step.

11. A display measuring method for a display  
characteristic of a display, comprising:

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    displaying a specific color patch on the display;
    measuring a color of the color patch displayed
25  on the display;

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comparing a plurality of previous RGB values and  
a plurality of current RGB values of the color patch;

comparing the measurement values of the color  
patch used in a color patch measurement value comparison

5 step; and

comparing a result obtained in an RGB value  
comparison step with the result obtained in a  
measurement value comparison step.

10 12. A display measuring method for measuring a  
display characteristic of a display, comprising:

measuring a white color patch displayed in a  
maximum color display step;

15 storing a measurement value obtained in a maximum  
color measurement step;

measuring a color of a color patch displayed on  
the display; and

20 comparing a measurement result in the  
measurement step with the measurement value stored in  
the maximum color storage step.

13. A display profile generating method for storing  
a display characteristic of a display in a profile,  
comprising:

25 measuring a color tone value of the display;

generating a plurality of pieces of color reproduction curve information with a plurality of different numbers of a plurality of color tones based on color tone data obtained by measuring;

5        verifying the accuracy of the profile based on the tone reproduction curve information generated in the tone reproduction curve information generation step; and

10        generating the profile using tone reproduction curve information with the highest accuracy.

14.    A display profile generating method for storing a display characteristic of a display, comprising:

15        measuring at least two colorless color patches; detecting dispersion in a measurement value of a colorless image based on a measurement result in the colorless measurement step;

20        comparing a dispersion value calculated in the dispersion calculation step with a pre-determined threshold value; and

      measuring a color tone value of the display, wherein in the color tone data measurement step, a TRC obtained by measuring only color tone data of one color is stored in the profile as the color tone data of the color if the dispersion in the measurement

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values of a colorless image is less than the pre-determined threshold value, and respective TRCs obtained by measuring the color tone data of each color are stored in the profile if the dispersion is equal  
 5 to or more than the pre-determined threshold value.

15. A display profile generating method for storing a display characteristic of a display in a profile, comprising:

10 storing reference data used to convert measurement data;

converting a measurement value using the reference data; and

generating the profile using the value obtained  
 15 by converting the measurement value,

wherein the reference data used to convert the measurement data are stored in the profile to be generated.

20 16. A display profile generating method for storing a display characteristic of a display in a profile, comprising:

setting a tone reproduction characteristic; and designating a basic profile,

25 wherein information about the tone reproduction

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characteristic in the basic profile is rewritten to the tone reproduction characteristic set in the tone reproduction characteristic-setting step.

- 5 17. A display profile generating method for storing a display characteristic of a display in a profile, comprising:
- setting a color temperature; and
  - designating a basic profile,
- 10 wherein the color information stored in the basic profile is rewritten based on the color temperature set in the color temperature-setting step.
18. A profile generating method, comprising:
- 15 displaying a color patch;
  - measuring the displayed color patch;
  - generating a TRC based on both the measurement value and a basic profile; and
  - replacing a TRC in the basic profile with the
- 20 TRC generation step.
19. A display profile generating method for storing a display characteristic of a display in a profile, comprising:
- 25 measuring a color patch displayed on the display;

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generating a plurality of color conversion tables with a plurality of different numbers of a plurality of grids based on grid data obtained by measurement;

- 5        verifying the accuracy of the profile based on the color conversion table generated in the color conversion table generation step; and

             generating the profile using the color conversion table with the highest accuracy.

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20.    A display profile generating method for storing a display characteristic of a display in a profile, comprising:

- storing a number of a plurality of color  
15 conversion tables for each type of a display; and

             determining the number of the color conversion tables depending on the type of the display,

- wherein the profile is generated by measuring based on a number of a plurality of nodes of a TRC preset  
20 for each display.

21.    A display profile generating method for storing a display characteristic of a display in a profile, comprising:

- 25        displaying a color patch with color tone data

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on the display;

measuring the color patch displayed on the display;

generating grid data from a plurality of  
 5 measurement values of color tone data of R, G and B  
 color elements by color additive-mixture; and  
 generating the profile from the grid data.

22. A display profile generating method for storing  
 10 a display characteristic of the display in a profile,  
 comprising:

displaying a color patch on a display;

measuring the color patch displayed on the display;

15 measuring both an image composed of only a  
 plurality of primary colors and the image of a secondary  
 or tertiary color;

generating a measurement value of the secondary  
 or tertiary color from the measurement value of the  
 20 primary color by color additive-mixture;

comparing the measurement value of the secondary  
 or tertiary color with an operation value obtained from  
 the measurement value of the primary color by color  
 additive-mixture; and

25 generating the profile from the grid data,

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wherein the profile is generated using the grid data calculated from a color tone value if color additive-mixture accuracy is high, and is generated using the measurement value obtained by measuring if  
 5 color additive-mixture accuracy is low.

23. The profile generating method according to claim 22, comprising:

measuring color tone data of  $n$  color tones;  
 10 measuring grid data of  $m$  grids ( $m < n$ );  
 generating grid data of  $s$  grids ( $s > m$ ) using the  $n$ -color-tone data and  $m$ -grid data; and  
 generating the profile from the grid data.

15 24. A display profile generating method for storing a display characteristic of a display in a profile, comprising:

measuring a color patch displayed on the display;  
 generating a matrix profile that stores TRC  
 20 information;

generating an LUT profile that stores LUT information;

calculating the accuracy of the generated matrix profile;

25 calculating the accuracy of the generated LUT

profile; and

selecting either the matrix or LUR profile based on the calculated accuracy.

- 5 25. A profile accuracy verifying method for verifying the accuracy of a display profile, comprising:
- displaying a color patch for accuracy verification;
  - 10 measuring the color patch for accuracy verification;
  - comparing an operation value obtained using the profile with the measurement result of the color patch for accuracy verification; and
  - 15 verifying the accuracy of the profile based on a comparison result.
26. A profile accuracy verifying method for verifying the accuracy of a display profile,
- 20 comprising:
- storing an image for evaluation;
  - converting the evaluation image using the profile; and
  - displaying both the evaluation image and
  - 25 conversion image converted using the profile.

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27. A display profile generating method for storing  
a display characteristic of a display in a profile,  
comprising;
- 5 displaying a color patch on the display;  
measuring the color patch displayed on the  
display;  
generating the profile using a measurement  
result;
- 10 storing an evaluation image;  
converting the evaluation image using the  
generated profile; and  
displaying both the evaluation image and a  
conversion image converted using the profile.
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28. A device for measuring a display characteristic  
of a display, comprising:
- means for displaying a specific color patch on  
the display;
- 20 means for counting a period that elapses after  
the color patch is displayed; and  
means for measuring a color of the color patch  
displayed on the display,
- wherein the color patch is measured when a
- 25 specific pre-determined time elapses after the color

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display.

29. A device for measuring a display characteristic of a display, comprising:

5 means for displaying a specific color patch on the display;

means for measuring color of the color patch displayed on the display;

10 means for displaying a pre-determined image after the measurement; and

means for counting a period that elapses after displaying the image,

wherein a subsequent color patch is displayed when a specific period elapses after the image display.

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30. A device for measuring a display characteristic of a display, comprising:

means for displaying an image before starting measurement of a color patch;

20 means for counting a period that elapses after displaying the image;

means for displaying a specific color patch on the display; and

25 means for measuring a color of the color patch displayed on the display,

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wherein when a specific period elapses after displaying the specific image, the color patch is displayed and the measurement is started.

- 5 31. A device for measuring a display characteristic of a display based on a measurement value of a displayed color patch, comprising:

means for comparing a measurement value of a color patch of a first size with the measurement value of  
10 the color patch of a second size, which is smaller than the first size;

means for measuring the color size of a third size, which is smaller than the second size, if as a comparison result, the measurement value of the color  
15 patch of the first size and measurement value of the color patch of the second size are different; and

means for setting the first size as the size of the color patch if the measurement value of the color patch of the first size and the measurement value of  
20 the color patch of the second size are the same.

32. A device for measuring a display characteristic of a display based on a measurement value of a displayed color patch, comprising:

25 means for measuring a white color patch displayed

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in a maximum color display step;

means for storing the measurement value obtained  
in the maximum color measurement step;

means for displaying a color of the color patch  
5 displayed on the display; and

means for comparing a measurement result  
obtained in the measurement step with the measurement  
value stored in a maximum color storage step.

10 33. A device for generating a display characteristic  
of a display as a profile, comprising:

means for measuring at least two colorless color  
patches;

means for detecting dispersion in a measurement  
15 value of a colorless image based on a measurement result  
in a colorless measurement step;

means for comparing a dispersion value  
calculated in a dispersion calculation step with a  
pre-determined threshold value; and

20 means for measuring a color tone value of the  
display,

wherein in a color tone data measurement step,  
a TRC obtained by measuring color tone data of only  
one color is stored in the profile as color tone data  
25 of each color if the dispersion value of the measurement

value of the colorless image is less than the predetermined threshold value, and respective TRCs obtained by measuring respective color tone data of each color are stored in the profile if the dispersion  
 5 value is equal to or more than the predetermined threshold value.

34. A device for generating a display characteristic of a display as a profile, comprising:
- 10 means for displaying a color patch on the display;  
 means for measuring the color patch displayed on the display;  
 means for measuring both an image composed of a plurality of only primary colors and the image of  
 15 a secondary or tertiary color;  
 generating a measurement value of the secondary or tertiary color from the measurement value of a primary color by color additive-mixture;  
 comparing the measurement value of the secondary  
 20 or tertiary color with an operation value obtained from the measurement value of the primary color by color additive-mixture; and  
 generating the profile from grid data,  
 wherein the profile is generated using the grid  
 25 data calculated from a color tone value if color

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additive-mixture accuracy is high, and it is generated using the measurement value obtained by measuring if color additive-mixture accuracy is low.

- 5 35. A device for verifying the accuracy of a display profile, comprising:
- means for storing an image for evaluation;
  - means for converting an evaluation image using the profile; and
- 10 means for displaying both the image for evaluation and a conversion image converted using the profile.

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